

Year I

February, 1927

No. 1

INTERNATIONAL INSTITUTE OF AGRICULTURE

INTERNATIONAL BULLETIN OF PLANT PROTECTION

PUBLISHED MONTHLY



ROME

PRINTING OFFICE OF THE INTERNATIONAL INSTITUTE OF AGRICULTURE

1927

CONTENTS

INTRODUCTION, *p.* 1.

First list of official phytopathological Correspondents to the International Institute of Agriculture, *p.* 44.

VARIOUS QUESTIONS RELATING TO PLANT PROTECTION IN THE DIFFERENT COUNTRIES : *International Conventions and Agreements* : Bulgaria, *p.* 6. — Czecho-Slovakia, *p.* 6. — *International Committees and Commissions* : First Session of the Olive Fly Section, formed as part of the International Commission for Plant Protection, *p.* 6. — Establishment of the Boll-weevil and Pink Bollworm Section and of the Locust Section as part of the International Commission for Plant Protection, *p.* 11.

LEGISLATIVE AND ADMINISTRATIVE MEASURES : Brazil, *p.* 11. — Spain, *p.* 12. — Straits Settlements, *p.* 12. — United States of America, *p.* 12. — Italy, *p.* 13. — Uruguay, *p.* 14.

RECENT BIBLIOGRAPHY, *p.* 14.

NOTES : X. International Congress of Zoology, at Budapest, *p.* 16. — IV. World Conference of Entomology, at Honolulu, *p.* 16. — V. International Congress of Plant Sciences, at London, *p.* 16. — National League for Control of Crop Pests in France, *p.* 16.

YEAR I

FEBRUARY 1927

No. 1

INTERNATIONAL BULLETIN
OF
PLANT PROTECTION

INTRODUCTION

The Eighth General Assembly of the International Institute of Agriculture gave a new direction to the work of the Institute, in the field of Phytopathology, in its wider and more common sense of the study of plant diseases and pests. This direction, which is in strict accordance with the provisions of the International Convention of 7 June 1905 (Article 9, paragraph *d*) will have results of great practical value for world agriculture.

The Assembly of 1926 adopted in full the scheme proposed by the Italian Government — already unanimously adopted by the International Commission of Experts for Plant Protection, summoned at Rome on the eve of the meeting of the Assembly, — and decided that the Institute should from that time onwards make provision by means of a monthly publication for keeping phytopathologists, entomologists, and the Plant Protection Services in the various countries informed on the following questions : (i) the health conditions of crops in the different parts of the world ; (ii) new means of controlling plant diseases and pests ; (iii) legislative provisions regarding the importation and exportation of plants, parts of plants and seeds ; (iv) recent bibliography relating to plant diseases and pests ; (v) any information that may be of value to the Plant Protection Services in the different countries of the world.

The International Institute of Agriculture is thus called upon to act as a world Phytopathological Observatory, *i. e.*, to collect and make public as promptly and as widely as possible information, which will often be in the nature of advance news and in any case will undeniably have immediate practical value for all agricultural countries.

For the performance of this service of international phytopathological notification and documentation, which was assigned to it by the Assembly of 1926, the Institute at Rome, in its fundamental capacity of an institution representing States, has made an appeal for the collaboration of all the Governments concerned ; these Governments have been invited to

nominate for the purpose — in numerical proportion to the territorial extent of each country and to the importance of its agricultural position — official correspondents to the Institute, chosen from among the staffs of specialised scientific institutions and made responsible for the collection and direct transmission with all possible rapidity of communications relating to any fact, considered worthy of special note, which may be observed during the examination or study of plant diseases and pests, appearing in the different countries.

As the subjoined list shows, a large number of the Governments in every part of the world have replied with the utmost promptitude to the invitation of the Institute. It may therefore be anticipated that as soon as the whole network of these official correspondents is complete and in working order, the Institute will be able, thanks to their valuable assistance, to undertake satisfactorily this new work in the interests of world agriculture.

* * *

The present monthly publication, which will be published in five languages, English, French, German, Italian and Spanish, is intended to diffuse as widely and as rapidly as possible the information forwarded to the Institute by its official correspondents on plant diseases and plant pests. Under this general denomination are included non-parasitic diseases and those of unknown origin ; the cryptogamic diseases due to Bacteria, Myxomycetes, Fungi, Algae and Lichens ; Phanerogamic parasites and weeds ; noxious insects and the other injurious Invertebrates (Protozoa, Worms, Molluscs, Crustacea, Myriapods and Arachnids) and finally the noxious Vertebrates (Reptiles, Birds and Mammals).

The material will be sub-divided as follows :

I. — Discoveries and Current Events in World Phytopathology.

With a view to enabling the technicians concerned to keep up to date with the health conditions of crops in the different parts of the world, a regular service will be arranged, by means of official communications reaching the Institute and reported by it for the notification of the appearance, extent and gravity of plant diseases or pests, which either were previously unknown to science or to a particular country or part of a country as well as of diseases or pests already known to science, but which appear to be of special and immediate economic importance, such as serious outbreaks of cryptogamic diseases, or invasions of insects or other pests, or which seem likely to become exceptionally serious with consequences more or less immediate.

It is highly desirable that these communications of the results of observations and research, which form their subject matter, should be forwarded by the official correspondents of the Institute with a sufficient priority to their publication in the countries from which they emanate ; in any case they should be sent in advance of the circulation of the printed matter in question.

The communications will be accompanied, when necessary, by maps, drawings, photographs, etc.

Particularly in the event of the discovery of plant diseases or pests, either not before known to science or not as regards a certain country, it will obviously not be easy to determine with precision and immediately their systematic classification or characteristics, but the communications first made to the Institute in respect of such cases, although containing lacunae from the technical or practical point of view, will preserve their character of highly valuable preliminary notes, which it will always be possible to complete, as the observations and investigations carried on in field or laboratory proceed.

In the Institute publication the origin of each communication will be clearly stated so that the credit, and also the responsibility will be accorded to each correspondent.

II. — Various Questions relating to Plant Protection in the different Countries.

Under this head official communications not before published will find a place relating to : International Conventions and Agreements on the subject of Plant Pathology and Agricultural Entomology, general and partial, already concluded or to be concluded, their application and their practical results ; reports of the work of international Committees or Commissions dealing with questions relating to plant protection ; proposals for or results of study, research, experiments and enquiries of an international importance or character or demanding international co-ordination or collaboration ; questions of international phytopathological organisation or legislation ; lists of the principal plant diseases or pests in the different countries ; international statistics of the losses brought about by plant diseases or pests ; results of control measures carried out on a large scale ; new control measures, natural and artificial, proposed or made the subject of experiment, etc. etc.

III. — Legislative and Administrative Measures for Plant Protection.

Under this head will be summarised, as they appear in the different countries, the legislative and administrative provisions (laws, decrees, orders, regulations, circulars, instructions, and various measures) referring in general to plant diseases and plant pests and in particular to the circulation, the importation and exportation of plants, of plant parts and of seeds, from the phytopathological point of view.

IV. — Recent Bibliography relating to Plant Diseases and Pests.

Under this head a list will be given of the titles of new works on Plant Pathology and Agricultural Entomology, including articles in journals and reviews, books, pamphlets, official publications, etc., compiled

by systematic selection from the abundant literature which the Institute receives daily from every part of the world.

This bibliographical list will enable experts to keep abreast of modern international phytopathological literature.

An endeavour will be made to make both research and also reading easier for the expert, by arranging that titles of a general or non-explicit character shall be followed either by a line of explanation, in itself sufficient to give a general idea of the publication cited, or by the scientific names of the plant or animal pests more especially treated in the works, the titles of which are given.

V. — Notes.

Brief notes will appear of the organisation and results of Congresses, Conferences, Exhibitions and Competitions : the formation or progress of Institutes, Societies etc. : all with exclusive relation to the international field of Phytopathology, understood in its wider sense.

FIRST LIST OF OFFICIAL PHYTOPATHOLOGICAL CORRESPONDENTS TO THE INTERNATIONAL INSTITUTE OF AGRICULTURE.

(The order of countries is that used in diplomacy, *i. e.* French alphabetic order. The addresses of correspondents are in the language used by the respective Governments in their official communications with the Institute).

French Equatorial Africa.

BORIES, Ingénieur du cadre général de l'Agriculture, affecté à la Colonie du Gabon, Gouvernement Général de l'Afrique Equatoriale Française, B r a z - z a v i l l e .

DEGEILH, Conducteur des travaux agricoles de l'Afrique Equatoriale Française affecté à la Colonie du Gabon, Gouvernement Général de l'Afrique Equatoriale Française, B r a z z a v i l l e .

NEME, Fonctionnaire du Service de l'Agriculture de l'Afrique Equatoriale Française, affecté à la Colonie de l'Oubangui-Chari, Gouvernement Général de l'Afrique Equatoriale Française, B r a z z a v i l l e .

PACILLY, Conducteur des travaux agricoles de l'Afrique Equatoriale Française, affecté à la Colonie de l'Oubangui-Chari, Gouvernement Général de l'Afrique Equatoriale Française, B r a z z a v i l l e .

French West Africa.

Gouvernement Général de l'Afrique Occidentale Française, D a k a r .

Algeria.

C HRESTIAN, Professeur de Botanique et de Pathologie végétale à l'Institut Agricole d'Algérie, A l g e r (Algérie).

DELASSUS, Inspecteur de la Défense des Cultures, 28, boulevard Baudin, Algier (Algérie).

D^r MAIRE, Professeur de Pathologie végétale à la Faculté des Sciences, Algier (Algérie).

England.

Ministry of Agriculture and Fisheries, 10, Whitehall Place, London S. W. 1, England.

Austria.

KÖCK, Hofrat Dr. Gustav, Bundesanstalt für Pflanzenschutz, II/1, Trunnerstrasse 1, Wien (Österreich).

WAHL, Hofrat Dr. Bruno, Direktor der Bundesanstalt für Pflanzenschutz, II/1, Trunnerstrasse 1, Wien (Österreich).

Belgium.

MARCHAL, Em., Directeur de la Station de Phytopathologie de l'Etat, Gembloux (Belgique).

MAYNÉ, R., Directeur de la Station d'Entomologie de l'Etat, Gembloux (Belgique).

VAN HOVE D., Inspecteur du Service phytopathologique de l'Etat, Gand (Belgique).

Bermuda.

The Director, Department of Agriculture, Bermuda.

British North Borneo.

BATESON, E., Government Mycologist and Agricultural Adviser, Jesselton, British North Borneo.

Brazil.

MOREIRA, Dr. Carlos, Director do Instituto Biológico de Defesa Agrícola, Ministerio da Agricultura, Industria e Commercio, Rio de Janeiro (República dos Estados Unidos do Brasil).

Canada.

GIBSON, A., Entomologiste, Ministère Fédéral de l'Agriculture, Ottawa, Canada.

GÜSSOW, H. T., Botaniste, Ministère Fédéral de l'Agriculture, Ottawa, Canada.

Ceylon.

The Entomologist, Department of Agriculture, Peradeniya, Ceylon.
The Mycologist, Department of Agriculture, Peradeniya, Ceylon.

Belgian Congo.

GHEQUIÈRE, Jean, Entomologiste, Stanleyville (Congo Belge).
 STANER, Pierre, Mycologue, Eala (Congo Belge).

Egypt.

FAHMY, Tewfik, Head of the Mycological Branch c/o the Plant Protection
 Section, Ministry of Agriculture, Cairo, Egypt.

SHAW, Fred, Senior Entomologist, Ministry of Agriculture, Cairo, Egypt.

VARIOUS QUESTIONS RELATING TO PLANT PROTECTION
 IN THE DIFFERENT COUNTRIES

INTERNATIONAL CONVENTIONS AND AGREEMENTS.

Bulgaria : International Convention for the Organisation of Locust Control. — By letter of 20 September 1926 the Minister of Agriculture and of the Crown Lands of Bulgaria reported to the President of the International Institute of Agriculture that the International Convention of 31 October 1920 for the organisation of locust control had been ratified by the XXI National Assembly of Sofia in its third ordinary session and 125th meeting, which took place on 17 September last.

Czecho-Slovakia : International Phylloxera Convention. — By a note dated 28 September 1926, the Government of the Czechoslovakian Republic has made public its official adhesion to the International Phylloxera Convention of 3 November 1881 and to the Declaration of 15 April 1889.

INTERNATIONAL COMMITTEES AND COMMISSIONS.

FIRST SESSION OF THE OLIVE FLY SECTION, FORMED AS PART OF THE INTERNATIONAL COMMISSION FOR PLANT PROTECTION.

(From the minutes of the meetings).

It will be remembered that the International Conference for the control of the Olive Fly (*Dacus oleae*, Rossi) met at Madrid from 18 to 21 June 1923 on the initiative of the Spanish Government, under the auspices of the International Institute of Agriculture, and was attended by the

official representatives of Spain, France, Greece, Italy, Peru, Portugal and Jugoslavia, and that the following resolution was passed :

" La Conférence émet le vœu qu'une Commission permanente internationale de techniciens soit créée en vue de l'étude des diverses questions concernant la mouche de l'olive. Cette Commission devra se réunir au moins une fois par an. La première réunion aura lieu à l'Institut International d'Agriculture de Rome. Chaque réunion fixera le siège de la suivante ".

The scientific and practical importance of this resolution, which received also the unqualified support of the VIIth International Olive-Growing Congress, held at Nice from 14 to 20 October of the same year, was fully realised, and the Permanent Committee of the International Institute of Agriculture immediately proceeded to do all in its power to further the translation of the recommendation into actual fact.

Various circumstances having interfered with the realisation of the project the President of the Institute, His Exc. G. DE MICHELIS, proposed and the Permanent Committee unanimously agreed to the proposal at the meeting of 13 November 1926, to terminate the delay and to arrive at a definite and satisfactory solution of the question through the medium of the International Scientific Council recently constituted at the Institute. The proposal was in reality to form as a division of the International Commission for Plant Protection, one of the bodies composing the International Scientific Council, a Section specially charged with the study of all questions relating to the Olive Fly, such as would have been constituted by the Permanent International Commission of experts, as recommended by the resolution of Madrid.

It was recognised to be desirable that this Section should begin its work during the progress of the VIIIth International Olive-Growing Congress, which met at the Institute from 16 to 21 November 1926, and accordingly the Olive Fly Section was summoned for 18 November, at 4 p. m.

There were present : His Exc. DE MICHELIS, President of the Institute, Delegate of Italy to the Permanent Committee ; M. LOUIS-DOP, Vice-President of the Institute, Delegate of France to the Permanent Committee ; Señor FR. BILBAO Y SEVILLA, Ing. agron., Delegate of Spain to the Permanent Committee ; and the expert members of the Section as follows : Señor J. CRUZ LAPAZARÁN, Ing. agron., Director of the Practical School of Agriculture, Saragossa (for Spain) ; Dr. N. LYKNOS, Director of Agriculture for Corfu-Santa Maura-Cefalonia (for Greece) ; Prof. ANTONIO BERLESE, Director of the Royal Station of Agricultural Entomology, Florence (for Italy) ; M. A. F. DE SEABRA, of the Zoological Museum of the University of Coimbra (for Portugal) ; M. P. NOVÁK, Entomologist of the Agricultural Experiment Station, Spalato (for Jugoslavia). The following members did not attend : M. H. LATIÈRE, Ing. agron., Director of the " Station des Epiphyties " (for France) ; M. COUPIN, Lecturer in the School of Agriculture, Tunis (for the French Colonies) ; Prof. L. PETRI, Director of the Royal Station of Plant Pathology, Rome, and Prof. F. SILVESTRI, Director of the Royal Laboratory of Agricultural

Entomology attached to the R. Istituto Superiore Agrario, Portici (for Italy). Prof. G. TRINCHIERI, Chief of the Plant Protection Service of the International Institute of Agriculture, was also present at the meeting.

As President of the Institute, His Exc. DE MICHELIS, provisionally took the Chair at the meeting, and explained the origin of the Olive Fly Section, formed as a part of the International Commission for Plant Protection. He stated that the primary function of this Section was to give an impetus to wider international collaboration in its application to research and experiment on the olive fly pest; also it must co-ordinate from the scientific and technical standpoint the studies already made as well as those which still had to be made in this field. He went on to point out the desirability of concentrating at the Institute at Rome the official documents relating to the work of the Section, the practical results of which would be brought to the knowledge of the countries concerned by means of the new monthly periodical which the Institute intended to publish on questions connected with plant diseases and pests. In conclusion His Exc. DE MICHELIS thanked the experts for their attendance, adding an expression of good wishes for a successful outcome of their discussions, and proposed that the meeting should proceed to the appointment of the Chairman and Reporter of the first session of the Olive Fly Section. Professor A. BERLESE and Señor J. CRUZ LAPAZARÁN were respectively elected by acclamation to these positions. The work of the Section was then initiated under the chairmanship of Professor BERLESE who made a complete statement of the present position of the enquiries as regards the olive fly and as to the control methods, so far as Italy is concerned.

Reports followed on the same subject from: Dr. N. LYKNOS (for Greece), J. CRUZ LAPAZARÁN (for Spain), P. NOVÁK (for Jugoslavia), A. F. DE SEABRA (for Portugal), each in turn stating the action taken and the observations made in their respective countries where, as in Italy among the control methods known, the artificial method has up to the present time given the most satisfactory results in combatting the fly.

This exchange of views, which supplied material for a full discussion cleared up several doubtful points, outlined the various difficulties which in any country still interfere with the full success of the control measures, and indicated the direction to be given to any new research work.

Subsequently, with the object of enabling members, who had not been able to attend the first meeting, to state their views on this important question, and also as the agenda for the day had not been concluded, the Section decided to meet again on 20 November 1926, at 9 a. m.

* * *

At the second meeting which was opened with M. LOUIS-DOP, Vice-President of the Institute, in the chair, owing to the temporary absence of the President of the Section, Prof. BERLESE, there were present, besides the members present on 18 November, also M. H. LATIÈRE (for France) and Prof. L. PETRI (for Italy).

After the minutes of the previous meeting had been approved, a report was made by M. LATIÈRE on the olive fly control experiments made up to the present in France. He stated that in particular endeavours were being made to modify the method of artificial control generally applied in Italy and in other olive-growing countries, in view of the fact that French law prohibits the use of soluble arsenical substances and consequently of arsenate of soda, which as is well known, is the main ingredient in the olive fly mixture recommended by Prof. BERLESE.

M. LOUIS-DOR remarked that it appeared from the statements made by the experts that this mixture was for the present the most effective among the control measures known, and added that he was firmly convinced that if the Section were to formulate a recommendation, proposing that by the agency of the International Scientific Council the method so warmly recommended by Prof. BERLESE should be generally adopted in the various countries and that legislation should be modified in this sense, France would not refuse to accede to the request. The possibility was not excluded of finding other methods of control and experimenting with them or even of modifying with advantage the one considered the best, with a view to adapting it to the requirements of other countries. M. LAPAZARÁN (Spain) and M. LYKNOS (Greece) spoke to the same effect.

At this stage M. LATIÈRE pointed out that it was advisable for the Section to summarise in a series of resolutions the different opinions expressed by individual members, and that such resolutions should be then submitted by the Section for approval to the VIIITH International Olive-Growing Congress which was meeting at the same time in the Institute.

This was approved by the Section, and authority was given to M. LATIÈRE to extend the text of the resolutions in question, M. BILBAO making the request that there should be included one designed to stimulate the continuance of the research work done in the different countries on the natural control method.

Prof. BERLESE joined the meeting at this point and took the chair. M. DE SEABRA emphasized the advantage of laying down well defined rules for the uniform application of the control method recommended by Prof. BERLESE, with a view to a comparison of the results obtained in different countries, and also from the point of view of the expenses incurred in the application of this method.

Taking as point of departure the considerations brought forward by M. DE SEABRA, M. BILBAO proposed that the Section should invite Prof. BERLESE to draw up international rules for the application of the artificial control measures. The proposal was approved and Prof. BERLESE accepted the responsibility placed on him by the Section.

The following resolutions which were drawn up in the name of the Section by M. LATIÈRE were approved for submission to the VIIITH International Olive-Growing Congress :

"Sur la proposition de la Commission Internationale pour la Protection des Plantes — Section "Mouche de l'olive" — réunie les 18 et 20 novembre 1926 au siège de l'Institut International d'Agriculture,

le VIII^e Congrès International d'Oléiculture, reconnaissant la valeur de la méthode Berlese, seule, jusqu'ici, s'étant montrée réellement pratique et efficace et l'intérêt qui s'attache à son application générale contre la mouche de l'olive, émet les vœux suivants :

1) que les Gouvernements intéressés modifient, s'il y a lieu, leur règlement concernant l'emploi des composés arsénicaux en agriculture, de façon que les composés solubles, notamment l'arséniate de soude, puissent être appliqués contre le parasite dont il s'agit ;

2) que des recherches soient poursuivies dans tous les pays oléicoles en vue de reconnaître l'action des composés arsénicaux insolubles et tous autres produits sur la mouche de l'olive ;

3) qu'en attendant le résultat de ces recherches, les Gouvernements rendent obligatoire la lutte contre la mouche de l'olive, à l'aide de la méthode Berlese, dans toutes les régions où ce parasite cause des dommages importants ;

4) que l'acclimatation et la multiplication des auxiliaires naturels, parasites de la mouche de l'olive, soient poursuivies dans les Insectaria de tous les pays oléicoles ;

5) que soit également poursuivie dans tous les pays oléicoles l'étude des variétés d'olives résistantes à la mouche de l'olive" (1).

M. LAPAZARÁN proposed some questions for enquiry on which reports should be made to a future meeting of the Section.

M. BILBAO asked that among these questions any possible recent research on the application of the natural control methods should be kept in view.

M. LAPAZARÁN read out the following list of subjects, which were unanimously approved by the Section. M. LAPAZARÁN was appointed to act as reporter on these questions at the next meeting.

" 1) Résultats des démarches faites auprès des différents Gouvernements par l'Institut International d'Agriculture au sujet des moyens de lutte contre la mouche de l'olive.

2) Présentation par des délégués ou représentants des divers pays d'un plan indiquant les aires géographiques infestées par la mouche de l'olive et les dégâts approximatifs.

3) Résultats de l'étude des variétés d'olives résistantes à la mouche de l'olive, valeur commerciale de l'huile de ces variétés.

4) Recommandations aux Gouvernements pour que les produits employés pour la lutte contre la mouche de l'olive obtiennent un régime de faveur (tarifs douanières, de transport, etc.).

5) Résultats obtenus dans les recherches des auxiliaires naturels dans la lutte contre la mouche de l'olive".

The date of the second session of the Section will be fixed later.

There being no further business on the agenda and no one else desiring to speak, the chairman declared the first session of the Olive Fly Section closed.

(1) These resolutions, on submission to the VIIth International Olive-Growing Congress, were unanimously approved at the full plenary meeting of 21 November 1926.

ESTABLISHMENT OF THE BOLL-WEEVIL AND PINK BOLLWORM SECTION AND
OF THE LOCUST SECTION AS PART OF THE INTERNATIONAL COM-
MISSION FOR PLANT PROTECTION.

At the meeting of 10 December 1926, the Permanent Committee of the International Institute of Agriculture, on the proposal of the Delegate of Mexico, Ing. JUAN BALLESTEROS, resolved to establish within the International Commission for Plant Protection the two Sections, viz.: the Boll-weevil and Pink Bollworm Section and the Locust Section. The first of these will concern itself with questions relating to the control of the cotton boll-weevil (*Anthonomus grandis*) and the pink bollworm (*Pectinophora gossypiella*); the second will deal with all questions relating to locust control.

LEGISLATIVE AND ADMINISTRATIVE MEASURES

Brazil (1). — By the Decree of 10 September 1926, No. 17.437, the President of the Republic has modified the "Regulamento de Defesa Sanitaria Vegetal" — approved by Decree of 21 December 1921, No. 15,189 — so far as it relates to the importation of living plants or living plant parts.

In virtue of the Decree quoted above, Articles 4 and 5 of the "Regulamento" are suppressed.

In addition, according to the new text of the articles 6, 9 and 10, the Brazilian consuls in foreign countries will not grant visas to invoices of living plants or living plant parts except on production of the official health certificate of the country of origin, signed by the responsible officer of the Department of Plant Health Inspection of that country and containing the following information: (a) date of inspection; (b) name of the grower or exporter; (c) country, district and place of production; (d) quality and quantity of the products inspected; (e) a declaration certifying that the products in question are free from dangerous diseases, insects and other parasites considered to be harmful to crops. In special cases, the consular visa may be granted in accordance with the decisions issued in reference to such cases. In order to obtain authorisation to introduce into Brazil living plants or living plant parts coming from foreign countries, the person interested must furnish the Inspector of the Department of Plant Health Control, who has jurisdiction at the port or at the frontier station, with the official health certificate of the country of origin and full information as regards the destination of the products to be imported. (*Boletim do Ministerio de Agricultura, Industria e Commercio*. Rio de Janeiro, 1926, Year XV, Vol. II, No. 3, pp. 293-294).

(1) The countries are arranged in the French alphabetical order.

Spain.— By the Royal Decree of 22 October 1926 the "Instituto Nacional de Investigación y Experiencias" has been established at Madrid, divided into four Sections. With this Institute will be connected, among others, the Plant Pathology Stations, the "Centro para el estudio y extinción de plagas forestales", the Forest Insectary, the Stations of Forest Pathology (at present the regional Stations of Forest Entomology).

Agricultural, veterinary and forest pathology, constituting a subsection called "Departamento de Epifitías", will be grouped and coordinated in the experimental section of the new Institute. Without losing their independent character the following will form part of this sub-section: the "Estación central de Fitopatología forestal" (at present "Servicio de estudio y extinción de plagas forestales") and its insectary, the Central Station of Plant Pathology, as well as the Central Station of Veterinary Pathology shortly to be established. The three Directors of these institutions will direct the whole Service, while keeping in close touch with the Central Research Laboratory of Agricultural Pathology shortly to be established. A Section of Ornithology will be attached to the Sub-section mentioned above and will prepare the scientific catalogue of insectivorous birds.

The regulations of the Experimental Section of the Institute, as far as the "Departamento de Epifitías" is concerned, will divide the services into: (a) research and experiment; (b) department of phytopathological inspection; (c) control service.

For purposes of collaboration with the Government and with the National Institute of Agronomy in all questions relating to the diseases of live stock and plants, as also in the relative international relations, a "Comité consultivo de Epizootias y Epifitías" has been established and attached to the Institute. (*Gaceta de Madrid*, Madrid, 1926, Year CCLXV, Vol. IV, No. 299, pp. 507-508).

Straits Settlements.— By Order No. 18, dated 16 September 1926, otherwise known as "The Agricultural Pests (Amendment) Ordinance, 1926" the "Ordinance No. 166 (Agricultural Pests)" has been amended so that, where required by the results of the phytopathological inspection, the owner or occupier of the land and of the place of origin of the plant, which is afterwards found to be diseased, is bound to carry out, within the limits and as prescribed by the inspector, the treatment calculated to get rid of the source of the evil or to prevent its diffusion. (*Straits Settlements Government Gazette*, Singapore, 1926, Vol. LXI, No. 60, p. 1436).

United States of America.— With a view to the prevention of the introduction into the States of the European codling moth, *Carpocapsa splendana*, and of any species of chestnut weevils (*Balaninus* spp.), the Secretary of Agriculture, by the Order of 22 September 1926, which came into force on 1 October following, has forbidden the importation from Europe of all kinds and varieties of chestnuts, walnuts, filberts, and acorns, except under special permit, and after the observance of certain precautions. (UNITED STATES. DEPARTMENT OF AGRICULTURE. OFFICE OF THE SECRETARY. FEDERAL HORTICULTURAL BOARD. Notice of permit requirement for entry of chestnuts, walnuts, filberts, cobnuts, and acorns from Europe. Washington, 22 September 1926, p. 1).

Italy. — Owing to the fact that the presence of *Phylloxera vastatrix* of the vine has been certified in the Commune of Preturo (Province of Aquila in the Abruzzi), a decree of 1 September 1926 has extended to this Commune the rules laid down in article 10 to 14 of the regulations of 13 June 1918, No. 1099, with regard to the exportation of any kind of material indicated in numbers 1, 2, 3 and 4 of article 10 of the said regulations. (*Gazzetta ufficiale del Regno d'Italia*, Rome, 1926, Year LXVII, No. 205, p. 3963).

* * By decrees of 17 November, 6 and 15 December 1926, the Minister of National Economy has forbidden, until further notice, in the provinces of Verona, Vicenza and Treviso respectively, the pursuit and capture of the mole, *Talpa europaea*. The destruction of this animal is considered one of the causes of the excessive propagation of the *Gryllotalpa vulgaris* and other insects harmful to agriculture which have done very serious damage in these provinces. (*Gazzetta ufficiale del Regno d'Italia*, Rome, 1926, Year LXVII, No. 266, pp. 5033-5034; No. 283, p. 5356; No. 292, p. 5486).

* * For the despatch of chestnuts to the United States, the Ministry of National Economy has ordered that the Directors of the Royal Phytopathological Observatories of Portici (Prof. Filippo SILVESTRI) and of Turin (Prof. Piero VOGLINO) shall provide for :

(1) The careful inspection of chestnut plantations in the district to ascertain the presence or absence of *Carpocapsa splendana*.

(2) The issuing of instructions to persons interested to gather the crop of affected chestnuts in the infected area ; destroying them if useless and preventing any mixture with the healthy nuts or their bestowal in the same place ;

(3) The careful inspection of chestnuts destined for exportation first where they are stored and again when packed, so that any suspected nuts may be disinfected ;

(4) The issue of certificates of immunity from *C. splendana* and other parasites with a declaration of any disinfecting that has taken place ;

(5) The taking, in agreement with the sender, of all precautionary measures calculated to preserve chestnuts from the mould to which they are subject.

Similar instructions will be issued for nuts and hazel-nuts.

Moreover, the Ministry of National Economy had already last year entrusted experiments in methods of disinfection calculated to preserve chestnuts from *C. splendana* and other parasites to the Director of the Royal Station of Plant Pathology of Rome (Prof. Lionello PETRI), to the Director of the Turin Royal Observatory of Phytopathology (Prof. Piero VOGLINO) and to the Director of the Portici Laboratory of Agrarian Entomology (Prof. Filippo SILVESTRI).

The two first named Institutions arrived at the following conclusions :

(1) treatment with hot water at 42° C. increases mould and gives the chestnuts a cooked taste ;

(2) treatment with carbon disulphide kills the larva of *C. splendana*, preserves the chestnuts, but gives them a poor appearance and an unpleasant taste ;

(3) treatment with a mixture of ethyl acetate and carbon tetrachloride kills the larva but generates decay in the chestnut and causes it to smell of ethyl acetate ;

(4) 4-6 days immersion in water and subsequent drying by hot air shows up the affected chestnut, asphyxiates the caterpillar and aids the keeping properties of the chestnut.

The last method is therefore recommended by the investigators.

Similar experiments carried out at Portici and entrusted by the Director of the Royal Laboratory of Agrarian Entomology to Dr. Corrado CORIZZA, Inspector of plant diseases, gave the same results. This investigator also advises after treatment with hot air for five minutes at a temperature of from 40 to 50° if there is any suspicion of the chestnuts being affected by *Balaninus elephas* (1).

. On the suggestion of the "Cattedra Ambulante di Agricoltura" of Catania, a compulsory association has been established at Paternò for dealing with *Chrysomphalus dictyospermi* of citrus fruits and the orange fly, *Ceratitis capitata*. (*Il Coltivatore Siciliano*, Catania, 1926, Year 5, No. 11, p. 345).

Uruguay.—By a decree of 10 September 1926, No. 1759/926 of the "Ministro de Industrias", the *Aylesis nigricans* has been scheduled as harmful to agriculture. (*Diario oficial de la República Oriental del Uruguay*, Montevideo, 1926, Vol. LXXXIV, No. 6100, p. 593 A).

RECENT BIBLIOGRAPHY

Andres, Ad. Angewandte Entomologie in Ägypten. *Anzeiger für Schädlingskunde*, Berlin, 1926, II. Jahrg., Heft 6, S.73-74.

Arthur, J. C. and Kern, F. D. The problem of terminology in the rusts. *Mycologia*, Lancaster, Pa., 1926, vol. XVIII, no. 2, pp. 90-93.

Ashby, S. F. A wilt disease of bananas. A bacterial wilt disease of bananas in Trinidad caused by *B. Solanacearum* E. F. Sm. *Tropical Agriculture*, Trinidad, B. W. I., 1926, vol. III, no. 6, pp. 127-129.

Averna-Saccà, Rosario. Algumas molestias cryptogamicas novas do sistema radicular do caféiro. *Secretaria da Agricultura, Commercio e Obras Públicas, Comissão de Estudo e Debellação da Praga Cafеeira, Publi-*

cação N. 17, S. Paulo, 1926, 12 pp., 6 figg.

[*Stilbum radiciperda*, *Polyporus* sp., *Glomerella coffeecola* f. *radicicola*, *Fusarium* sp.].

Ballard, E. Fifth entomological progress report (Australia), season 1925-1926. *The Empire Cotton Growing Review*, London, 1926, vol. III, no. 3, pp. 276-279.

Beauverie, J. Sur les bases cytologiques de la théorie du mycoplasma. *Comptes rendus hebdomadaires des séances de l'Académie des Sciences*, Paris, 1926, t. 182, no 22, p. 1347.

Beck, Olga. Eine neue Krankheit an Ligustersämlingen (*Myxosporium cingulatum*, bezw. *Gonomia cingulata*). *Centralblatt für das gesamte Forstwesen*, Wien-Leipzig, 1926, 52. Jahr, Heft 1/2, S. 33-35.

(1) Communicated by the Ministry of National Economy to the International Institute of Agriculture.

Beck, Olga. Eine Krankheit an Liguster - Sämlingen und - Zweigen (*Myxosporium cingulatum*, bzw. *Gnomonia cingulata* n.sp.). *Zeitschrift für Pflanzenkrankheiten u. Pflanzenschutz*, Stuttgart, 1926, XXXIV. Bd., Heft 3./4, S.65-71, Abb. 1-7.

Beckerich, Abel. La lutte contre les ennemis des plantes cultivées. Les enseignements du Congrès de Lyon. *Revue de Viticulture*, Paris, 1926, 33^e année, t.I,XV, n°1677, pp.125-127.

Beckman, Iwar. Os nematoides na cultura de cerasas. *Boletim do Ministério da Agricultura, Indústria e Comércio*, Rio de Janeiro, 1926, anno XV, vol.I, n.º4, pp.449-452.

Benloch, Miguel. Algunas notas sobre el empleo de los aceites minerales y algunos otros como insecticidas. *Boletín de la Estación de Patología Vegetal*, Madrid, 1926, año I, n.º1, págs.14-17.

Benloch, Miguel. Experiencias sobre el empleo del cianuro de calcio en la fumigación de los olivos para combatir la plaga de *Phloeothrips oleae*, Costa. *Boletín de la Estación de Patología Vegetal*, Madrid, 1926, año I, n.º1, n.º2, págs.55-64, figs.1-4.

Benloch, Miguel. Tratamiento de primavera contra el « arafuelo » o « polilla » del manzano (*Hyponomeuta malinellus* Z.). *Boletín de la Estación de Patología Vegetal*, Madrid, 1926, año I, n.º2, págs.70-71, figs.1-2.

Benloch, Miguel y del Cañizo, José. La enfermedad de las alubias en Barco de Avila (Fusariosis). *Boletín de la Estación de Patología Vegetal*, Madrid, 1926, año I, n.º1, págs. 2-7, figs.1-3.
[*Fusarium Mariii*].

Berro, Jesús M. Resultados de algunas experiencias para la destrucción por el frío de la *Ceratitis capitata* Wied. *Boletín de la Estación de Patología Vegetal*, Madrid, 1926, año I, n.º2, págs.64-66.

Blumer, S. Variationsstatistische Untersuchungen an Erysiphaceen. *Annales Mycologici*, Berlin, 1926, Vol. XXIV, No.3./4, S.179-193, Fig.1.

Bodenheimer, F. S. Première note sur les Cochenilles de Syrie. *Bulletin de la Société entomologique de France*, Paris, 1926, n.º3-4, pp.41-47, fig.1-5.

Bodenheimer-Stellwaag. Ueber Zeit und Ort der ältesten Heu- und Sauerwurmschäden. *Anzeiger für Schädlingskunde*, Berlin, 1926, II. Jahrg., Heft 8, S.100-103.

Börner, C. Phänologie und Bekämpfung der Blattreblaus. *Nachrichtenblatt für den deutschen Pflanzenschutzdienst*, Berlin, 1926, 6. Jahrg., Nr.9, S.67-71.

Box, Harold E. Sugar-cane moth borers (*Dialraea* spp.) in British Guiana. *Bulletin of Entomological Research*, London, 1926, vol.XVI, part 3, pp.249-266.

Bremer, G. Een cytologisch onderzoek van strepenziekte bij suikerriet en andere planten. *Archief voor de Suikerindustrie in Nederlandsch-Indië*, Soerabaja, 1926, Jaarg. 1926, No.11, pp.337-371, fig.1-20.

Bremer, Hans. Schädlingsbekämpfung mit flüssigen Arsenködern in Deutschland. *Anzeiger für Schädlingskunde*, Berlin, 1926, II. Jahrg., Heft 5, S.56-58.

NOTES

X. International Congress of Zoology, at Budapest. — The Permanent Committee of the International Congress of Zoology announces that the X International Congress of Zoology will meet from 4 to 9 September 1927, at Budapest, under the presidency of Dr. G. HORWÁTH, Director of the Section of Zoology of the National Museum of Hungary.

IV. World Conference of Entomology, at Honolulu. — The Pan-Pacific Union has proposed to arrange for the meeting of the IV World Congress of Entomology in 1928 at Honolulu.

V. International Congress of Plant Sciences, at London. — At the IV. International Congress, which was held at Ithaca (New York State) from 16 to 23 August 1926, it was decided to hold the next Congress in 1930 in London. At this fifth Congress questions of bacteriology, mycology and phytopathology will be fully discussed.

National League for Control of Crop Pests in France. — There has been recently formed in France, with headquarters at Paris (5, Avenue de l'Opéra) the "Ligue nationale de lutte contre les ennemis des cultures", the object of which is: (1) to study, with the assistance of experts of all classes, methods of control of crop pests; (2) to popularise these methods by means of publications, lectures and communications of various kinds to the press; (3) to promote the establishment of syndicates, of federations of syndicates or of private organisations undertaking the application of such control measures as are recognised to be most effective.

The League will also organise demonstrations, trials of apparatus, machinery and produce competitions, as well as a central ordering department for obtaining equipment, machinery, and commodities for members on the most favourable terms possible.

International Bulletin of Plant Protection

This Bulletin will appear in monthly numbers and five editions : English, French, German, Italian and Spanish.

The annual subscription for any one of these five editions will be **20 Liras.**

OCCASIONAL PUBLICATIONS ON QUESTIONS OF PLANT PROTECTION ISSUED BY THE INTERNATIONAL INSTITUTE OF AGRICULTURE

1. Le Service de protection des plantes dans les divers pays (3rd edition, 1914, 355 pp., in 8vo)	4 Liras
2. La lutte contre les sauterelles dans les divers pays (1916, 187 pp., in 8vo)	3,50 Liras
3. La lutte contre la mouche de l'olive dans les divers pays (1922, 89 pp., in 8vo)	5 Liras
4. Etat actuel de l'organisation de la lutte contre les sauterelles dans divers pays. Résultats d'une enquête internationale (1926, 131 pp., in 8vo)	15 Liras

All subscriptions and remittances for these publications should be made either direct to the International Institute of Agriculture, Villa Umberto I, Rome (10), Italy, or to The Ministry of Agriculture and Fisheries, Whitehall Place, London, or to P. S. King and Son, Ltd., Great Smith Street, Westminster, London.
